Focus Group Meetings Report

How segments of the design and construction industries view architects

CALIFORNIA BOARD OF ARCHITECTURAL EXAMINERS

Public Protection Through Examination, Licensure and Regulation

CALIFORNIA BOARD OF ARCHITECTURAL EXAMINERS
Public Protection Through Examination, Licensure and Regulation
400 R Street, Suite 4000 • Sacramento, CA 95814
(916) 445-3393 • (916) 445-8524 *fax*
cbae@dca.ca.gov *email* • www.cbaewnet.gov *website*

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Section I
Introduction

Design and Construction Industry Focus Groups

In fall 1998, the California Board of Architectural Examiners (CBAE) conducted five customer focus group meetings to gather broad-based input for the annual update of the Board's Strategic Plan. Each focus group brought together representatives from a specific area of professional practice:

- Members of the American Institute of Architects, California Council
- Forensic Specialists
- Institutional Users of Architectural Services
- Contractors and Developers
- Building Officials

The focus group meetings were held at the CBAE offices in Sacramento and were facilitated and graphically recorded by Daniel Iacofano of Moore Iacofano Goltsman, Inc. (MIG). All five meetings followed a standardized agenda designed to gather participant feedback on the knowledge, skills, and competencies of today's professional architects and the areas in which architects need to improve in the future (See Appendix A). Participants also provided feedback on CBAE's role, effectiveness, and areas needing improvement, with an emphasis on the specific elements of CBAE's mission. To supplement the information gathered during the focus group discussions, participants filled out written questionnaires related to each meeting agenda topic (See Appendix B).

The overwhelming majority of participants indicated that they have been practicing in their areas of professional expertise for twenty years or more. Most have been engaged in activities involving architects for a similar duration. Focus group participants were selected to ensure the inclusion of professionals who practice in a cross-section of California regions and communities (e.g., Northern California, Bay Area, Southern California, Los Angeles, San Diego, Central Valley, etc.). Many of the participants indicated that they also practice in other western states, throughout the United States, and/or internationally.

Internship Focus Group

On January 14, 1999, CBAE conducted a focus group meeting consisting of associates, interns, and recently licensed architects, all of whom were active in the American Institute of Architects, California Council and familiar with licensing issues. The purpose of this focus group was to gather some of the same input for the strategic plan update that was gathered from the five design and construction focus groups.

Participants provided detailed written responses to the same questions that participants in the design and construction focus groups had answered orally in their meetings. Their responses were similar to the other focus groups as far as architects' skills and weaknesses.

In addition, participants were sent detailed questionnaires on how well their education and work experience prepared them for 1) meeting the knowledge, skills, and abilities identified by the five design and construction focus groups as being critical to an architect's success and 2) their awareness, understanding, or abilities in the skills and knowledge identified in the 37 National Architectural Accrediting Board (NAAB) accreditation criteria.

Section II
Executive Summary

To chart future strategic plan actions, the Board considered the results of these focus group meetings along with data from building official visits, the recent occupational analysis, and complaint patterns. Individually, the focus group sessions were informative; however, when aggregated, a significant set of common themes emerged from the six sessions that merits serious consideration by both the Board and the profession. The highlights of these themes are grouped into two categories: (1) expected architectural skills and (2) areas of architectural skills needing improvement.

Expected Architectural Skills

As demonstrated by the focus groups, consumers and clients desire architectural services to be delivered by well-qualified architects. The qualities an architect is expected to possess are:

Technical Expertise

- ability to prepare a clear and complete set of working drawings
- ability to take a concept and work with the client to get it built
- knowledge of regulatory requirements, including safety, access, and code issues
- understanding of project sustainability
- understanding of building systems, including materials, structures, and technologies
- knowledge of how a building is built (constructability)

Legal and Ethical Performance

- knowledge of legal requirements
- utilization of written contracts and documentation
- compliance with rules of conduct and ethical standards
- adherence to contractual obligations

Management Skills

- good budget and financial management
- on-time delivery
- skillful contract administration

Creative Abilities

- design ability, creativity, and knowledge of current design trends

Communication Skills

- graphic communication skills
- oral communication skills
- written communication skills

Leadership Skills

- demonstrated community leadership
- project management ability
- consensus-building skills

Areas of Architectural Skills Needing Improvement

Focus group participants' opinions varied both within and across focus groups regarding how performance met their expectations. While most felt that architects perform well and design competently, weaknesses were identified in the areas of technical, communication, and management skills. These are general observations that obviously do not apply to all architects; however, these comments were almost universal across all focus groups.

Focus group participants observed that problems often arise with inexperienced architects or architects who were not active in the day-to-day operations. Most felt this was attributable to "gaps" in the professional development process from formal education through internship/mentorship, professional experience, and licensing. Further, participants from outside the profession were surprised that there were no continuing education requirements similar to those in other professions. It was also observed that liability and profitability concerns are limiting the quality of service provided by architects. Some felt that firms are "doing the minimum," although it was acknowledged that performance varies significantly among firms, as well as within firms.

Specific areas identified as needing attention include the following:

Technical Issues

- Having knowledge of codes, code updates, and other regulatory requirements
- Coordinating technical documents
- Producing a complete set of plans
- Producing a set of good working drawings
- Coordinating all consultants
- Not participating in administering the construction contract
- Integrating the technical details into the overall design concept
- Understanding building systems and the construction process

Communication Skills

- Setting reasonable expectations with clients
- Keeping in contact with clients
- Staying involved in the entitlement and planning process
- Communicating areas of expertise and qualifications
- Participating in civic life and professional and industry organizations
- Conducting predesign meetings
- Conducting post-occupancy evaluations
- Focusing on big picture and customer and user needs

Management (Business) Skills

- Handling contract administration
- Bringing project in on budget and on time

Use of the Report

The Board has reviewed these identified areas of weakness and attempted to determine which areas are within CBAE's purview, and which are the responsibilities of CBAE, the National Council of Architectural Registration Boards (NCARB), the American Institute of Architects (AIA), building officials, the marketplace, or a combination thereof.

The Board concluded that its focus should be on professional and technical issues that impact public health, safety, and welfare.

The Board is looking at alternate means to improve candidates' experience levels and technical competence prior to licensure. That is the primary responsibility of the Professional Qualifications Committee.

To address concerns over a licensee's ability to keep current, the Board created a Task Force on Post-Licensure Competency. The Task Force is looking at CBAE's appropriate role in ensuring the continued competency of California architects after initial licensure. The Task Force was asked to analyze alternative methods and to consider the Board's role in ensuring licensees' continued competency, and to recommend possible actions to correct the areas identified as licensee weaknesses.

Section III

Design and Construction Industry Focus Groups

A. AIACC Focus Group (September 22, 1998)

In Attendance

Steve Castellanos, Derivi Castellanos Architects

Nikal Conti, HK&A/AIA Association/Northern Californian YAF Regional Director

Kurt Cooknick, AIACC

David A. Crawford, AIA–San Diego

Charles A. Higueras, Gordon H. Chong & Partners–San Francisco

R. Kent Mather, AIA–Santa Clara Valley

Sandra Muratore, Muratore Associates

Ron Ronconi, CAS Architects, Inc.

R. K. Stewart, Gensler/AIACC

Paul Welch, AIACC

Alison Whitelaw, Platt Whitelaw Architects, Inc., AIA San Diego

Focus on the Architect

Issues Facing Architects

Focus group participants discussed the following major issues facing architects.

Dealing with Clients

- Educating clients
- Looking out for the best interests of clients
- Relative sophistication of clients
- Residential clients
  - Basic trust is lacking
  - Selection
  - Scope
- Matching client needs with architectural expertise
- Pseudo-sophisticated clients
  - Clients who desire to control architects
  - Who owns the plans?

Inexperienced Architects

Participants identified the following threshold issues for new architects entering the profession:

- Emphasizing that young architects need internship experience, mentoring, and coaching
- Characterizing architecture as a learning profession
- Getting exposure to the full range of the architectural profession

Participants also identified the following issues for inexperienced architects in general:

- Inexperienced architects do not understand their basic responsibilities
- Sophisticated clients put pressure on architects to do work that is out of scope
- Rejection of incomplete submittals by building departments

Business Skills

Economic pressure on firms results in their inability to mentor and teach young architects what they need to do. This results in:

- Misunderstandings over scopes and fees
- Difficulty meeting expectations of clients
- Problems with the residential and public schools sectors

Knowledge, Skills, and Competencies

Participants listed the knowledge, skills, and competencies they expect from professional architects and suggested the integration of the areas listed below.

- Good communications skills
  - Graphic
  - Verbal
  - Written
- Ability to produce working drawings with good details and dimension lines
- Knowledge of codes
  - Building
  - Environmental
  - Building technologies
- Business skills
- Design ability
- Understanding building systems
  - Civil
  - Mechanical
  - Electrical
  - Structural

B. Forensic Specialists Focus Group
(September 29, 1998)

In Attendance

Richard Crowell. DPIC Companies, Inc.
Peter Curry, Curry, Price, & Curt Structural Engineers
Bruce Green, Green Planning and Architecture
Ed Grochowiak, Ed Grochowiak
Stan Livingston, Salerno Livingston Architects
Mellissa Truitt, Vanir Construction Management, Inc.
Gary L. Vinson, Greve, Clifford, Wengel, and Paras, LLP

Focus on the Architect

Issues Facing Architects

Focus group participants discussed the following major issues facing architects:

- Small firms are the most likely to get themselves in trouble
- The market is tough, there is less selectivity and there are not enough competent architects
- Architects need to understand the entire building process and all the systems involved
- Good architects will inform clients of problems in their approach
- Good architects will be able to put the entire picture together
- Need more complete education and more complete examination
- It is difficult for a client to differentiate between good and bad architects
  - More sophisticated clients are asking for the project architect's qualifications
  - Architects take work that is out of their areas of expertise
- Firm should play a major role between school, field work, and licensing

Knowledge, Skills, and Competencies

Focus group participants described the following knowledge, skills, and competencies that they expect from professional architects:

- A manager of people and the environment – design is secondary
- Competent at the process of design
- Knowing the business of architecture
  - Learning business skills on the job can impact the quality of the end product
  - Most architects do not understand legal obligations, strict liability, or negligence standards
  - Ability to be on-time and on-budget
  - Ability to communicate with users, clients, and agencies

  - Contract administration
  - A large percentage of complaints stem from communication problems, especially concerning contract administration
  - Ability to communicate clearly regarding the expectations of the contractor's time and the scope of services
- Knowledge of climates, building types, etc.
- Understanding of all building systems (e.g., structural, electrical, mechanical, and design)
- Ability to produce a quality set of working drawings and details
  - Many architects do not actually learn the details and simply cut and paste the information
  - Waterproofing (i.e., green board showers)
  - K-12 schools
  - Caulking
  - Hose bibs
  - Speedline
- Knowledge of codes
- Ability to turn the client's program into designs
- "Architect" label is too broad
- There is not enough emphasis on technical issues, which sends the wrong message
- Look at the statistics on where buildings fail and address these issues in the exams, education, etc.

Expert Witness Characteristics

Focus group participants identified both desirable and undesirable characteristics for an expert witness as follows:

- It is desirable for an expert witness to have actual design experience in the community in question
- Some experience as an expert witness is important
- Having actual buildings built in a town known to the jury adds to the credibility of the witness
- Standards for expert witnesses should include the amount of time actually in practice
- Colorado offers certification of expert witnesses and provides training and a code of ethics
- It is not desirable to have career experts in a trial

C. Institutional Users Focus Group
(October 13, 1998)

In Attendance

Diego Cadena, Los Angeles County Public Works
Mike Courtney, Department of General Services, OREDS
Tom Lollini, University of California Berkeley
Donald Lydy, Federal Government
Bob Newsom, DMJM
Mark Tortorich, General Services Administration
George Wong, City & County of San Francisco
Vincent Yen, City of Los Angeles

Focus on the Architect

Issues Facing Architects

Focus group participants identified the following major issues facing architects:

- The failure of the educational process to fully prepare architecture students for the broad architectural profession
- The need for interdisciplinary teamwork – architects working in coordination with other disciplines
- The lack of adequate resources for training
- Architects are lacking core competencies and knowledge about functioning systems, resulting in projects not coming together

Knowledge, Skills, and Competencies

Focus group participants listed the knowledge, skills, and competencies they expect from professional architects. They suggested an integration of the areas listed below:

- The architect as the "master orchestrator" of the building process
- Architects should possess experience in a particular specialized field (i.e., courthouses, schools, or libraries)
- The architect is responsive to what clients want
- Architects display sensitivity to the program, its content, and the social interactions with the client
- The architect should be able to display situational creativity
- The architect can conceive of alternative delivery models and performance-based designs
- The architect has the ability to control all aspects of the project
- Architects should possess technological knowledge and an understanding of life cycle issues (e.g., the ability to design for ongoing maintenance and usability, etc.)
- Architects need to be competent at writing specifications, possess interpersonal skills, and demonstrate proficiency at business management

- Architects should have the ability to see the larger vision of what the client needs
- The architect should know how to access resources and knowledge
- Architects need technical knowledge of the effects of their designs on energy requirements and the environment

Strengthening the Effectiveness of the Architect

Focus group participants suggested the following ways of broadening education to address the knowledge, skills, and competencies identified above:

- Focus on strengthening mentorship, internship, and training programs
  - Internships are helpful for broadening skills through experience
  - Job experience and mentorships make a big difference in educating young practitioners in the skills that cannot be taught in schools
  - Smaller firms cannot afford to provide extensive training
  - Small firms provide proximity to the principal, but large firms need to provide training in a more systematic way
  - Architects need training; it is expensive, but cheaper than a lawsuit
  - Address basic skills at an early stage, because the best time for apprenticeships is before the exams
- Place less emphasis on the design aspects of the profession and encourage broad knowledge and creativity; architects need the ability to understand the structure in context
- Encourage diverse skill sets in the profession and foster interdisciplinary teamwork
- Need educational reform; the role of architecture has changed and the skill sets needed are different from those of 20 years ago
- Broaden educational requirements to include both "life" competencies and professional competencies
- Architects need to be competent in both up-to-date and basic knowledge
- Multidisciplinary teams create synergy to produce the best product
- Teachers need to use exam requirements to guide their curricula
- We are looking for master orchestrators, but testing for designers

D. Contractors and Developers Focus Group
(October 20, 1998)

In Attendance

Mark Bartley, DPR Construction
Peter Borberg, Turner Construction
Morri Graf, HMH Construction
Eric Lamb, DPR Construction
Peter McCuen, McCuen Properties
Tom Remensperger, Nintemam Construction
Mark Whitfield, Donahue Schriber
Charlie Zakskorn, Zakskorn Construction

Focus on the Architect

Issues Facing Architects

Focus group participants discussed the following major strengths and weaknesses they observe in their dealings with architects, with an emphasis on issues particular to working with public and private sector clients:

Strengths

- Architects are good at collaborative efforts and teamwork and are able to work to make their projects successful
- Architects are doing more front-end preparation

Weaknesses

- Architects are producing weak technical documents
- Many architects lack an understanding of how certain materials sequence/interface
- Architects need hands-on experience, and should "walk in the construction manager's shoes"
- Architects are producing designs that are not constructable
- There is a lack of experienced architects
- Architects need more time in the field away from contract administration meetings

Private Sector Projects

- Architects working in the private sector must know their customers' business and technical aspects of their program
- A benefit of working in the private sector is the ability to do "just in time" design
- Decisions can be made more quickly when working with the owner
- Project delivery is much more successful in the private sector because there is less bureaucratic red tape; delivery is more timely, and that translates into cost savings
- Contractors generally have better business people on their staff than do architects

Areas Needing Improvement – Private Sector

- Timeliness of work products
- Coordination with associated disciplines
- Need a cadre of seasoned "multisheet" (technical) architects

Public Sector Projects

- There is a lack of leadership from architects, especially on public sector jobs
- Design and construction are taking a shorter percentage of time, while land use/environmental matters are taking more
- Public sector requires more careful documentation and tends to have less integration of design and construction
- Sign-off requirements are greater in the public sector
- Need to be sure that the architect is an expert in all areas, including being a technical director and contract administrator
- Third-party managers were brought in as a band-aid when architects started pulling back on management skills
- Structural problems are the greatest in public projects
- Architects need to improve their understanding of the program definition when working with the public sector
- Architects are put in a difficult position with the competitive bidding process; cost sensitivity leads to cutting corners

Areas Needing Improvement – Public Sector

- Architects need to be able to produce tight documents
- Production and execution
- Architects need a greater understanding of building codes
- Code compliance is a fertile field for the exam process that can add a lot of value to projects
- Architects working in the public sector need the ability to work with bureaucracy and "built-in" program changes
- Architects need to be able to work with the internal communication channels of public sector agencies

Knowledge, Skills, and Competencies

Focus group participants listed the following knowledge, skills, and competencies that they expect from professional architects:

- Architects need to demonstrate competency in the three phases of production
  - Predesign development
    - Understanding client needs (e.g., budget and facility)
  - Technical documents
    - Understanding how materials work
  - Construction administration
    - Maintaining flexible working relationships
    - Coordinating documents and consultants

- Understanding of all systems
  - Knowledge of how buildings go together
  - Marketing and feasibility studies
- Land use planning
  - Entitlements
  - Approvals
  - Design review
- Code compliance

How to Strengthen the Effectiveness of the Architect

Apprenticeships and Experience

- Ask architects to "build" from another's set of plans
- Renew and re-emphasize the early '90's ladder of apprenticeship
- Architects need a three-year apprenticeship in a firm to experience the dynamic team environment that is not modeled in schools
- Place more emphasis on code compliance

Client Education

- Educate consumers about the contract administration phase
- It is important not to cut out consumer education

Evaluation/Education

- Architects need feedback; post-occupancy evaluations after a project is completed should be a regular part of the process to see what worked or didn't work

Collaboration

- Improve collaboration between architects, other disciplines, and construction managers

E. Building Officials Focus Group
(November 4, 1998)

In Attendance

Frank Chiu, City and County of San Francisco

Richard Esgate, Esgil Corporation

Stephen Jensen, County of Marin

Yung Kao, City of Monterey Park

Lillie Mozaffari, Sacramento County Building Inspection Plan Review

John B. Quan, P.E., City of Anaheim Building Division

Michael C. Vieira, County of Butte Development Services Department Building Division

William Wong, City and County of San Francisco Department of Building Inspection

Richard C. Young, City and County of San Francisco Department of Building Inspection

Focus on the Architect

Issues Facing Architects

Focus group participants identified the following issues facing architects:

- Architects are not doing enough field research
- Architects do not have a working knowledge of local codes
- Architects are submitting incomplete plans and specifications (especially in commercial design and build projects), resulting in delays and unnecessary costs
  - Architects submit incomplete plans early to cut in line for the review process; they anticipate being done with their plans in time for review
  - Architects submit incomplete plans that exhibit a lack of local code knowledge
- There is a lack of coordination between engineering requirements and architectural designs
- Busy firms compromise the integrity of the building review process
- Architects are blaming building officials and bureaucracy for delays
- Building officials prefer 100% complete plans, but will work with architects even when plans are incomplete
- Building officials in San Francisco experience the most problems with commercial buildings
- Staff still has to educate architects on Title 24, even though it's been in place since 1982
- Since the early 1990's economic downturn, San Francisco's policies have been business-friendly, but the city still has a 40% rejection rate for plans, even though there are more checklists than ever

- In residential architecture, most problems occur with woodframe apartment buildings
- Competition from "low-cost" firms that cut corners brings down quality across the board

Knowledge, Skills, and Competencies

Focus group participants listed the knowledge, skills, and competencies that they expect from professional architects.

- Architects need to be able to communicate their ideas graphically and verbally
- Architects need current up-to-date knowledge of local safety issues and codes
  - Architects need to identify their approach to code analysis on a full sheet of submittals
  - Access codes (ADA and Title 24)
- Architects should have specialized design knowledge (e.g., hotels, residential, or commercial)
- Architects need to have the ability to translate ideas and program requirements into a satisfying project for the client (including both materials and details)
- Architects need to have the ability to produce high-quality details and specifications
- Architects should perform reviews in the field and conduct project follow-ups
- Architects should be involved in researching the existing building conditions in cases of renovation and rehabilitation
- Architects need to have knowledge of all building systems (electrical, structural, etc.)
- Architects should have knowledge of construction procedure and processes (e.g., construction administration and construction management)

Strategies for Improvement

Focus group participants responded to the question "How should architects improve?"

- Improve the qualification process with continuing education, certification, and special training for code updates
- Schools need to teach codes as a concept
- Build partnerships between architects and building officials
- At a local level, predesign meetings provide an opportunity to go through a plan checklist process
- Require confirmation that the architect visited the site and knows the existing conditions
  - Architects say that they are not paid to know the existing conditions
  - A site survey is less costly than making changes later

- Emphasize the value of more vigorous up-front screening
- Emphasize greater conformity of codes among cities
  - Encourage "smart" permitting/over-the-counter processes
  - The state could get involved in defining uniform codes, with CBAE acting as a catalyst
- Require more stringent structural observations
  - Structural issues are not addressed before plans are submitted
- Encourage partnerships with industry organizations
- Look to the San Francisco Code Advisory Committee as an example of an organization eliminating redundancies and inconsistencies in codes and regulations
- Encourage strong processes and up-front screenings

F. Summary of Major Findings

Focus on the Architect

The Architect's Knowledge, Skills, and Competencies

Focus group participants described the knowledge, skills, and competencies a licensed architect should possess. An analysis of the input gathered suggests a high degree of concurrence across focus groups with regard to each of the following areas:

- Ability to prepare clear, concise, and complete construction documents, including the coordination of trade requirements within documents
- An understanding of building systems, including materials, structures, and technologies, as well as practical knowledge of how a building is built
- Design ability, creativity, and knowledge of current design trends
- Graphic, verbal, and written communication skills
- Competencies in conducting predevelopment/feasibility analyses (including the cultural, societal, and historical context), developing designs that fit the intended program and financial criteria of the client (i.e., easily maintainable structures, project sustainability, and lifecycle, etc.)
- Business skills, including financial management, project management (i.e., control and management of an interdisciplinary project team and on-time delivery), contract administration, public relations, leadership in the community and the firm, and consensus building
- Knowledge of the relevant legal and regulatory processes, including safety-related requirements, access regulations, standards of care, standards of practice in the community, local codes and regulations, and where to go for answers
- Ability to facilitate and protect the interests of clients through expanded roles in the entitlement and planning approval process

The Performance of Architects

Participants' opinions varied both within and across focus groups with regard to the performance of architects in meeting the expectations outlined above. While most felt that architects perform well in the areas of traditional competency, there were several areas of strong, critical feedback. The most frequently mentioned areas of weakness are listed below:

- Business skills associated with the delivery of architectural services
  - Setting reasonable expectations with clients and others
  - Contract administration
  - Budgets and cost control
  - Consultant team coordination
- Current knowledge across the broad spectrum of the architectural field and "knowing what they don't know and where to go to get the information they need"

- Combination of big picture and technical skills
- Coordination of technical documents
- Predevelopment analysis and post-occupancy evaluation
- Knowledge of codes and regulations (e.g., ADA/Title 24 and waterproofing)

Focus group participants observed that problems often arise with inexperienced architects. Most felt this was attributable to "gaps" in the professional development process from formal education through internship/mentorship, professional experience, and licensing. It was also observed that liability and profitability concerns are limiting the quality of service provided by architects. Some felt that firms are "doing the minimum," although it was acknowledged that performance varies significantly among firms, as well as in the areas of competency within firms.

Areas for Improvement

Focus group participants focused on the following areas for improvement:

- Business skills
  - Contract administration
  - Customer service and client education
  - Communication
  - Teamwork/coordination of subcontractors
- Big-picture focus on customer and user needs
- Greater involvement in the entitlement and planning process
- Endorsement of best practices
- Caution in practicing outside of areas of expertise
- Knowledge of codes, code updates, and regulatory requirements
- Increased participation in civic life and professional and industry organizations
- Better coordination of formal education, internship, professional practice, and continuing education
- Internship requirements
  - Hands-on experience
  - Experience working on/from another's plans
- Mentorship of students and new architects
  - Emphasize lessons learned/learning from mistakes
- Greater emphasis on continuing education and training
- Conduct predesign meetings and post-occupancy evaluations
- Changing the public's perception of architects and their value to the building industry
- Impacting legislation that affects architects

Focus on CBAE

CBAE's Role and Effectiveness

In general, focus group participants demonstrated a basic understanding of CBAE's role. Many were able to list several of the elements included in the organization's mission statement. With regard to CBAE's overall effectiveness, the following major themes emerged:

Effective Areas

- Testing for minimum competency (oral and written)
- Communicating activities (e.g., good newsletter)
- Pursuing complaints
- Easy to contact to discuss issues
- Issuing licenses
- Doing a good job, considering budget constraints
- Effectiveness has increased in recent years

Challenges

- Timeliness and strength of enforcement
- Timeliness of complaint process
- Communicating with the public about what CBAE does in a proactive fashion (i.e., consumer education process)
- Issuing specialized licenses (licenses are too general)
- Increasing requirements for internship, work experience, community service, and continuing education
- Testing for details
- Testing for code updates
- Continuing education and training
- Coordinating across disciplines
- Improving oral exam format and content
- Ensuring that practitioners have an understanding of the business aspects of the profession
- Too few architects being licensed

CBAE's Mission

Following are the key themes from focus group discussions regarding CBAE's mission.

> ***Ensuring that those entering the practice meet minimum standards of competency by way of education, experience, and examination***

Effective Areas

- Making sure applicants are meeting the minimum standards
- Basic architectural techniques/material systems
- Design skills
- CBAE is improving in this area

Challenges

- Ensuring that practitioners have the necessary business skills (i.e., budgets/costs, negotiation of contracts, scope of service, client expectations, etc.)
- Providing a bridge from schools through internship and professional development
- Impacting NCARB/Architect Registration Examination (ARE)
- Developing a meaningful internship development program
- Testing for technical knowledge of codes and regulations (e.g., weatherproofing)
- Testing for constructibility issues
- Testing for details
- Ensuring that new professionals learn how to design to budget
- Coordinating among the disciplines

Suggestions for Improvement

- Raise the minimum standards
- Develop a supplemental exam to address unique aspects of practicing in California
- Increase educational requirements (e.g., business skills and field experience)
- Require broader understanding and knowledge of building technologies and codes (e.g., roofing/waterproofing issues)
- Test for the ability to budget, knowledge of codes (including updates), and technical ability
- Develop a meaningful internship development program
- Require continuing education

Requiring that any person practicing or offering to practice architecture is licensed

Effective Areas

A large majority of focus group participants indicated that CBAE is doing a good job in this area.

Establishing standards of practice for those licensed to practice

Effective Areas

A large majority of focus group participants indicated that CBAE is doing a good job in this area.

Challenges

- Bolster and enforce code of conduct
- Need higher standards, especially related to codes

Suggestions for Improvement

- Raise the standards
- Increase educational requirements and require demonstration of competency in key areas prior to licensing

- Reduce the number of unlicensed individuals able to practice under a firm's umbrella
- Emphasize code knowledge and require regular recertification as codes are revised
- CBAE needs more enforcement power to pursue low-performing practitioners
- Coordinate with NCARB
- Promote CBAE

Protecting consumers and users of architectural services

Effective Areas

A large majority of focus group participants indicated that CBAE is doing a good job in this area.

- CBAE is improving in this area

Challenges

- Codes and regulations (e.g., Americans with Disabilities Act (ADA) issues)
- Explore performance issues experienced by unsophisticated clients

Enforcing the laws, codes, and standards governing architectural practice in a fair and uniform manner

Effective Areas

A large majority of focus group participants indicated that CBAE is doing a good job in this area.

Challenges

- Standards are too broad
- Lack of knowledge of codes, regulations, standards, etc.
- Complaint and disciplinary processes take too long
- CBAE needs more enforcement power
- Lack of resources inhibits the Board's ability to do a better job

Suggestions for Improvement

- Need faster, stronger, and more visible enforcement
- Raise awareness among District Attorneys and the Attorney General
- Create a toll-free hotline

Empowering consumers by providing information and educational material to help them make informed decisions

Effective Areas

Focus group participants were divided in their opinions of CBAE's performance in this area.

Challenges

- There is not enough information out there on what architects do

Suggestions for Improvement

- Provide easy-to-use information and educational materials to clients and the general public
  - Inform the general consumer about the benefits of hiring licensed architects/design professionals
  - Increase consumer awareness of CBAE
  - Provide information through home shows, real estate professionals, etc.
- Do more to protect smaller consumers

G. Detailed Summary of Participant Questionnaires

Provided below is a detailed summary of the participant questionnaires for each focus group.

Focus on the Architect

1) Please describe the knowledge, skills, and competencies that you expect from professional architects.

AIACC

- An architect needs to have competencies in communication, business, and construction documents.
- Knowledge – Building systems, legal regulatory processes, current technological knowledge; Skills – Design ability, use of technology, (i.e., computer software etc.); Competencies – Leadership in the community and the firm, consensus building, team building, and business practice.
- In addition to knowledge of all technological and regulatory issues that protect the health, safety and welfare of the public, an architect needs to have the ability to protect the interests of clients and users and an understanding of the societal, cultural, and historical contexts within which the architect works. An architect also has to have the ability to define and solve problems in all aspects of architecture.
- Architects must have a firm understanding of applicable building codes and technology, have a basic ability to express their ideas graphically, verbally, and in writing, and possess a minimum level of business acumen to deal with clients and the public.
- Areas of competency include: environmental factors, legal requirements, regulations and codes, human factors, performance of materials and structures, programmatic functions, communication skills, integration of technical knowledge, and business skills (see the Board's task analysis survey conducted last year).
- Architects should have a basic understanding of building technology, health and safety code issues, the ability to understand and communicate effectively with clients/users, and an ability to integrate across these competencies to create safe, pleasing, and functional buildings.

- Architects should understand their basic responsibilities.
- Required competencies include predevelopment feasibility, programming, design, construction, post-occupancy surveys, community outreach, regulatory processing, conflict resolution, financial management, promotion, and public relations.

Forensic Specialists

- An architect must have knowledge of current building codes, techniques, materials, and how buildings go together; skills in interacting with people (clients, public officials, contractors); estimating and managing budgets, and costs for developers; creating innovative design solutions to solve client's problems; and competence in design and communication.
- From the legal standpoint, it is generally expressed in terms of the standard of care, (i.e., the duty to use that degree of learning and skill ordinarily used by reputable architects practicing in the same community and under the same circumstances).
- The architect needs to have the ability to translate clients' program needs into design construction knowledge. The architect also needs to have the ability to provide on-time delivery of quality plans, and competent contract administration.
- The architect needs to have the ability to understand and effectively use various building systems in the design of buildings.
- An architect must have knowledge of building construction, methods, and materials; the competency to assemble the major components and details; and the skill to assemble the whole into an esthetically pleasing and workable package.
- An architect must have an understanding and appreciation of all aspects of the building process, know how the other disciplines interface with the architect's work, and understand the time required for other disciplines to perform their work.
- Ideally, the architect has the highest level of professional and technical skills in designing most projects.

Institutional Users

- An architect needs to demonstrate competency in leadership, communication, and business management skills.
- Architects should show sensitivity to the design program, scope of work, and the client. An architect needs to be able to translate program requirements into design solutions, possess knowledge of construction, up-to-date technology, codes, and regulatory agencies.
- Architects are lacking knowledge and communications skills. Architects must be able to understand that their role is just a small part of the process of delivering a facility.
- Architects should have the ability to lead the client through the design and construction phases of a building or renovation project.
- Architects are expected to have an overall understanding of all aspects of architecture, including professional practice, design, building systems, and materials.

- Architects need a broad knowledge of all types of design projects and hands-on contract administration experience.
- Architects need to demonstrate experience, leadership, responsiveness to client needs, and creativity, and be able to design easily maintainable structures.
- Architecture requires creativity and a broad understanding of the project's sustainability and life cycle. An architect should demonstrate leadership, communicate clearly, write well, understand business skills and social interactions, and possess situational creativity.

Contractors and Developers

- Architects need to have practical skills and knowledge of how a building is built.
- Architects need the ability to keep a project within budget while providing for a client's needs.
- Architects need the skills necessary in all phases of document production to complete projects.
- Architects should perform research and represent the needs of the client, design to the financial criteria of the client, control and manage the design team, and understand the applicable codes and their effects on the project.
- Architects need to know material limitations, have the ability to coordinate and interface among various disciplines within documents, and coordinate trade requirements within documents.
- Architects need to know materials and methods, the codes and applicable building laws, expanded roles in entitlement and planning approvals, and new and exciting design trends.

Building Officials

- In addition to design skills, an architect needs safety and code knowledge; this is especially important in San Francisco.
- Architects need to have an understanding of all building components: codes, structural engineering, access regulations, competition, and commercial projects.
- Architects need to have knowledge of building codes (including ADA requirements) and understanding of energy effects, seismic effects, and structural engineering.
- Architects should be able to communicate their ideas verbally, graphically, and in writing, and know local regulations, know where to go for answers, understand building products and safety issues, and know construction processes.
- Architects should design beautiful buildings that are structurally sound, acoustical, and energy efficient. Ideally, architects would specialize in one kind of building.
- Architects need to know structural and nonstructural code requirements (e.g., access regulations) and present clear and concise construction documents.

2) In general, how well do you think architects are meeting those expectations?

AIACC

- Architects are meeting expectations well in some areas, but not all.
- In general, very well, however it is a challenge to stay current in the broad spectrum of areas.
- The combination of technical skills with contextual "big-picture" skills is hard to find.
- Relative to other professionals, architects are doing a fairly good job.
- The majority of architects do very well on environmental performance and the technical issues traditionally viewed as the "practice" of architecture. Architects are less successful with the "business" issues associated with the delivery of architectural services.
- Architects are meeting expectations well. A void does exist between education and practice – we should be extending the time for young architects to achieve adequate competency.
- Predevelopment feasibility (fair); programming (fair - good); design (good); construction (fair); post-occupancy services (fair); community outreach (good - very good); regulatory processing (good); conflict resolution (fair); financial management (fair); and promotion/public relations (fair).

Forensic Specialists

- Most architects are performing at high levels.
- Architects do very well. The ones I see are alleged to have fallen below the standards, but most of these claims are arguable.
- Architects do fairly well in most cases; their shortfall is typically setting up reasonable expectations with clients and others.
- Architects are doing well except in development housing, where a professional builder calls the shots.
- Architects are not doing well.
- Architects are not doing well; generally there is a lack of understanding of how the design process interfaces with other disciplines, resulting in incomplete and poorly coordinated drawings.

Institutional Users

- I believe that liability and profitability concerns are limiting architects.
- In our experience, we are finding good technical knowledge but poor business skills, including writing skills.
- In general, architects are meeting minimum requirements and on a few occasions they are exceeding them.
- Most architects I have contact with are exceeding expectations.
- Several architects I've dealt with rely on the shop drawing process to facilitate their decisions, and most are meeting expectations.

- Generally, architects (both public and private) are meeting expectations very well.
- Architects' performance is uneven and serendipitous.

Contractors and Developers

- Architects are not meeting expectations as well as necessary.
- Expectations of architects are low and are filled in by other team members.
- Architects are doing what's needed, but it is just the minimum.
- An architect's performance depends on the firm and its level of experience.
- Generally, architects are performing well, although a large recent wave of inexperienced professional architects has been thrust into responsibilities beyond their capabilities.

Building Officials

- Most architects meet expectations.
- Generally, architects are conscientious and proud of their work.
- Architects are good in structural design but need improvement in building codes.
- In general, architects' plans are better than contractors'.

3) How should architects improve in those areas?

AIACC

- Bridges between school and internship and between internship and profession need to be improved; a good solution is a comprehensive internship and continuing education program.
- Improve contract negotiations and communication with clients. Clarify expectations of both parties before work begins – architects need to communicate that they perform professional services but don't produce a product.
- Continuing education activities that expand knowledge into areas that need strengthening and also deepen existing areas of knowledge.
- Renew the commitment to training and continuing education; participation in professional, industrial, and local civic groups; endorsement of informed and good practices; legislative action to safeguard architects' interests; and mentorship of students and young professionals.

Forensic Specialists

- Improve communication skills and current knowledge of codes and building.
- Attention should be paid to details, particularly the contract description of scope of work. Use extreme caution in practicing beyond areas of expertise and pay close attention to paperwork during contract administration.
- Continuing education.
- Improve licensing exam for architects covering high liability areas (e.g., roofing).

- Emphasize the role of the architect as a facilitator of the man-built environment – the architect is not just a designer.
- Improve continuing education (e.g., business skill development) and get involved in professional associations and intern training.

Institutional Users

- Improvements are needed, partly in education, but mostly in the industry.
- Architects need to focus on the big picture, and improve their understanding of what the owners/users need.
- Improve the client/public perception of architects' value to the building industry.
- Work with teams in firms that have full-scale projects involving all aspects of architecture.
- Architects need to shift to the practice of customer service.
- Architects should pay attention to details, improve coordination with subcontractors, and complete the design instead of requiring the general contractor.
- Architects need mentorship, internship, and multidisciplinary career development programs.

Contractors and Developers

- Increase hands-on experience and work on projects designed by another architect.
- Emphasize "lessons learned" – avoid previous mistakes.
- Increase continuing education with regard to technical applications, coordination of disciplines, and implementation processes within documents.

Building Officials

- Emphasize code updates in the exam requirements, affidavits, smart permit processes, and more competent continuing education.
- Continuing education for future development in the field.
- Get involved in working with, instead of against, regulatory agencies.
- Continuing education and recertification in code updates.
- Conduct predesign meetings.

Section IV
Internship Focus Group

Internship Focus Group (January 14, 1999)

In Attendance

Frances Donlon, Assoc. AIA, Associate Director, North
Laura H. DuCharme-Conboy, AIA, Secretary, AIA San Diego
Jim Fruit, AIA, Architect
Edward Mojica, Assoc. AIA, 1999 Associates
Arin Resnicke, AIA Associate Director, AIA Golden Empire
Mark Rowland, Past AIACC Student Director
Paul Schroeder, AIA, IDP Southern Regional Coordinator
Letrice Sherrillo, Assoc. AIA, 1999 Associate Director–elect South
Leslie Young, Assoc. AIA, 1999 Associate Director-elect South

On January 14, 1999, the CBAE conducted a focus group meeting consisting of architectural interns and associates. Its purpose was to gather input for the annual Strategic Plan update.

A. Internship/Working Experiences

Participants discussed the internship experiences that contributed the most to their education and professional development. Several participants had worked at small firms, while others had worked for both small and large firms. A more detailed description of participants' internship experiences is presented below.

- Worked under a licensed architect and dealt with "real world" time and budget constraints
- Learned about contracts while working for the AIACC
- Learned how to "put the pieces together" and how to handle person-to-person interactions by working in construction
- Opening an office was an important educational experience
- Worked as a building inspector and learned about the systematic application of codes
- Learned about the entire community development process through work in a Community Development Department
- Learned how to perform post-occupancy evaluations as an intern with the AIA

Participants discussed their ideas for better integrating the learning experiences provided by work and school. Some participants suggested that experience managing a project while in school would be valuable. However, others suggested that schools should focus on what they do best—teaching theory, concepts, etc. Most participants felt that continuing education is crucial for integrating work and school experience and posed the question, "Should continuing education be mandated or voluntary?"

B. Focus on the Architect

The Architect's Knowledge, Skills, and Competencies

Participants were asked to describe the knowledge, skills, and competencies they expect from a licensed architect.

Architects should:

- Possess general knowledge of all building types and building technologies
- Have an understanding of legal issues, planning and land use laws, business issues, and liability concerns
- Be trained in specific areas
- Possess both general and specific areas of expertise
- Understand community economic development
- Know their professional limits and know when to ask for help
- Be skilled at working within the client's budget and timeframe
- Be able to manage a project from beginning to end
- Possess negotiation skills
- Have an understanding of people and the environment
- Be effective communicators with the ability to convey thoughts and ideas about design
- Be capable in the areas of consensus building and facilitation
- Have empathy and an understanding of people

C. Focus on the Architect's Knowledge, Skills, and Competencies

Participants were asked to rate how well their education, work experience, or internship provided them with the knowledge, skills, and competencies necessary to be a successful architect. The rating scale was 1 to 5 (1 = not at all; 5 = extremely well).

Construction Documents

Participants felt they learned more about working with construction documents through their internship experiences than through formal education. However, it was noted that not all internships involve working with construction documents.

Education – 2.3 Work Experience – 4.3

Building Systems

Participants felt that their education was insufficient in the area of building systems. One participant noted that the topic was covered too late in the degree program (5th year). Another suggested that the topic could be better integrated with other aspects of design education. Participants said they learned more about building systems through their work experiences than they had in the classroom.

Education – 2.9 Work Experience – 3.6

Design Creativity

Most participants felt their education and work experiences enabled them to significantly develop their design skills. A few participants commented that the value of their work experiences varied from firm to firm. Participants suggested that the education process could be improved with more frequent speaker events and interactions with the "environment."

Education – 4.2 Work Experience – 2.9

Communication

In discussing communication, participants said they were pleased with what they had learned regarding graphic communications. However, some felt there was too much emphasis on "eye candy." Many noted that the subjects of professional writing, critical thinking, and analysis should be given more formal attention. Work experience honed the learned skills.

Education – 3.6 Work Experience – 4.2

Predevelopment Feasibility

Participants did not feel they had adequately developed their skills in assessing predevelopment feasibility through their formal education, especially with regard to financial issues. Some felt this subject is best learned in the context of a project. Work experiences were given high marks as a means of gaining predevelopment feasibility assessment skills.

Education – 2.7 Work Experience – 4.0

Business Skills

Participants did not feel that their formal education provided adequate opportunities to develop their business skills. However, work experience provided more effective learning opportunities. Some suggested that business skills should be the focus of at least one course taken while in college, so that students gain exposure to contracts, Request for Proposals, etc. Participants also saw continuing education courses as a good forum to learn new business skills.

Education – 1.3 Work Experience – 4.2

Legal Issues and Regulations

Participants said they needed more exposure to the topics of land use, zoning, and CEQA regulations than they received as a part of their formal education. Those who were pleased with their education in these areas mentioned courses taken at community colleges and Cal Poly—San Luis Obispo. In general, participants felt that these topics need to be better integrated into the educational curriculum. Experience was cited as the best place to learn.

Education – 2.2 Work Experience – 4.3

Client Interests

Participants felt their schooling did not provide sufficient preparation for the experience of working with clients' interests (Group Rating 1.5). However, internship/employment provided valuable "real-world" experience (Group Rating: 3.6). Participants felt that internship should give more emphasis to the subjects of entitlements and project background.

Education – 1.5 Work Experience –3.6

D. Focus on Awareness, Understanding, and Abilities

Participants were asked how well their education and work experience prepared them for their awareness, understanding, or ability in the skills and knowledge identified in the 37 National Architectural Accrediting Board (NAAB) accreditation criteria. Following are the survey questions and the results.

On a scale of 1 to 5, circle how well your education and your work experience prepared you for your awareness, understanding, or ability in the following areas. 1 would be not at all, 5 would be extremely well.

CRITERIA	EDUCATION	WORK EXPERIENCE
1. Verbal and Writing Skills *Ability to* speak and write effectively on subject matter contained in the professional curriculum	1 2 3 4 5 1 6 1 2 **3.4**	1 2 3 4 5 2 2 3 2 **3.6**
2. Graphic Skills *Ability to* employ appropriate representational media, including computer technology, to convey essential formal elements at each stage of the programming and design process	1 2 3 4 5 1 5 4 **3.7**	1 2 3 4 5 1 1 5 2 **3.9**
3. Research Skills *Ability to* employ basic methods of data collection and analysis to inform all aspects of the programming and design process	1 2 3 4 5 2 2 5 1 **3.5**	1 2 3 4 5 1 6 2 **4**
4. Critical Thinking Skills *Ability to* make a comprehensive analysis and evaluation of a building, building complex, or urban space	1 2 3 4 5 3 5 2 **3.9**	1 2 3 4 5 1 2 5 1 **3.7**
5. Fundamental Design Skills *Ability to* apply basic organizational, spatial, structural, and constructional principles to the conception and development of interior and exterior spaces, building elements, and components	1 2 3 4 5 3 4 3 **4.0**	1 2 3 4 5 1 2 3 3 **3.8**
6. Collaborative Skills *Ability to* identify and assume divergent roles that maximize individual talents, and to cooperate with other students when working as members of a design team and in other settings	1 2 3 4 5 1 4 2 3 **2.7**	1 2 3 4 5 1 5 3 **4.2**

CRITERIA	EDUCATION	WORK EXPERIENCE
7. Human Behavior *Awareness of* the theories and methods of inquiry that seek to clarify the relationships between human behavior and the physical environment	1 2 3 4 5 3 2 2 3 **3.5**	1 2 3 4 5 1 1 3 2 2 **3.3**
8. Human Diversity *Awareness of* the diversity of needs, values, behavioral norms, and social and spatial patterns that characterize different cultures, and the implications of this diversity for the societal roles and responsibilities of architects	1 2 3 4 5 1 4 4 1 **3.5**	1 2 3 4 5 1 1 3 1 3 **3.4**
9. Use of Precedents *Ability to* provide a coherent rationale for the programmatic and formal precedents employed in the conceptualization and development of architecture and urban design projects	1 2 3 4 5 4 4 2 **3.8**	1 2 3 4 5 1 3 3 2 **3.6**
10. Western Traditions *Understanding of* the Western architectural canons and traditions in architecture, landscape, and urban design, as well as the climatic, technological, socioeconomic, and other cultural factors that have shaped and sustained them	1 2 3 4 5 1 2 6 1 **3.7**	1 2 3 4 5 2 1 5 1 **3.3**
11. Non-Western Traditions *Awareness of* the parallel and divergent canons and traditions of architecture and urban design in the non-Western world	1 2 3 4 5 1 4 3 2 **3.6**	1 2 3 4 5 2 2 3 2 **2.8**
12. National and Regional Traditions *Understanding of* the national traditions and the local regional heritage in architecture, landscape, and urban design, including vernacular traditions	1 2 3 4 5 3 3 3 1 **3.2**	1 2 3 4 5 2 1 1 3 2 **3.2**
13. Environmental Conservation *Understanding of* the basic principles of ecology and architects' responsibilities with respect to environmental and resource conservation in architecture and urban design	1 2 3 4 5 1 2 5 2 **3.8**	1 2 3 4 5 2 2 3 2 **3.3**

CRITERIA	EDUCATION	WORK EXPERIENCE
14. Accessibility *Ability to* design both site and building to accommodate individuals with varying physical abilities	1 2 3 4 5 3 2 1 2 **2.8**	1 2 3 4 5 2 2 1 6 **4.4**
15. Site Conditions *Ability to* respond to natural and built site characteristics in the development of a program and design of a project	1 2 3 4 5 1 3 3 3 **3.8**	1 2 3 4 5 1 1 5 2 **3.8**
16. Formal Ordering Systems *Understanding of* the fundamentals of visual perception and the principles and systems of order that inform two- and three-dimensional design, architectural composition, and urban design	1 2 3 4 5 1 1 6 2 **3.9**	1 2 3 4 5 1 2 4 2 **3.7**
17. Structural Systems *Understanding of* the principles of structural behavior in withstanding gravity and lateral forces, and the evolution, range, and appropriate applications of contemporary structural systems	1 2 3 4 5 2 4 4 **3.2**	1 2 3 4 5 2 1 5 1 **3.6**
18. Environmental Systems *Understanding of* the basic principles that inform the design of environmental systems, including acoustics, lighting and climate modification systems, and energy use	1 2 3 4 5 4 2 2 2 **3.2**	1 2 3 4 5 1 2 4 2 **3.8**
19. Life-Safety Systems *Understanding of* the basic principles that inform the design and selection of life safety systems in buildings and their subsystems	1 2 3 4 5 2 3 2 2 1 **2.7**	1 2 3 4 5 1 6 2 **4.1**
20. Building Envelope Systems *Understanding of* the basic principles that inform the design of building envelope systems	1 2 3 4 5 2 3 2 3 **2.6**	1 2 3 4 5 1 1 3 2 2 **3.3**
21. Building Service Systems *Understanding of* the basic principles that inform the design of building service systems, including plumbing, electrical, vertical transportation, communication, security, and fire protection systems	1 2 3 4 5 2 3 2 3 **2.6**	1 2 3 4 5 2 4 3 **4.1**

CRITERIA	EDUCATION	WORK EXPERIENCE
22. Building Systems Integration *Ability to* assess, select, and integrate structural systems, environmental systems, life-safety systems, building envelope systems, and building service systems into building design	1 2 3 4 5 2 5 2 1 **2.2**	1 2 3 4 5 1 6 2 **3.9**
23. Legal Responsibilities *Understanding of* architects' legal responsibilities with respect to public health, safety, and welfare; property rights; zoning and subdivision ordinances; building codes; accessibility and other factors affecting building design, construction, and architectural practice	1 2 3 4 5 3 2 3 2 **2.4**	1 2 3 4 5 1 4 4 **4.2**
24. Building Code Compliance *Understanding of* the codes, regulations, and standards applicable to a given site and building design, including occupancy classifications, allowable building heights and areas, allowable construction types, separation requirements, occupancy requirements, means of egress, fire protection, and structure	1 2 3 4 5 3 4 3 **2.7**	1 2 3 4 5 1 1 4 3 **4**
25. Building Materials and Assemblies *Understanding of* the principles, conventions, standards, applications, and restrictions pertaining to the manufacture and use of construction materials, components, and assemblies	1 2 3 4 5 2 3 5 **2.3**	1 2 3 4 5 1 2 3 3 **3.9**
26. Building Economics and Cost Control *Awareness of* the fundamentals of development financing, building economics, and construction cost control within the framework of a design project	1 2 3 4 5 6 3 1 **1.5**	1 2 3 4 5 3 5 1 **3.8**
27. Detailed Design Development *Ability to* assess, select, configure, and detail as an integral part of the design appropriate combinations of building materials, components, and assemblies to satisfy the requirements of building programs	1 2 3 4 5 1 4 4 1 **2.5**	1 2 3 4 5 1 2 2 4 **4**
28. Technical Documentation *Ability to* make technically-precise descriptions and documentation of a proposed design for purposes of review and construction	1 2 3 4 5 2 6 1 1 **2.1**	1 2 3 4 5 2 3 4 **4.2**

CRITERIA	EDUCATION	WORK EXPERIENCE
29. Comprehensive Design *Ability to* produce an architecture project informed by a comprehensive program, from schematic design through the detailed development of programmatic spaces, structural and environmental systems, life safety provisions, wall sections, and building assemblies, as may be appropriate; and to assess the completed project with respect to the program's design criteria	1 2 3 4 5 1 5 4 **2.3**	1 2 3 4 5 2 3 4 **4.2**
30. Program Preparation *Ability to* assemble a comprehensive program for an architecture project, including an assessment of client and user needs, a critical review of appropriate precedents, an inventory of space and equipment requirements, an analysis of site conditions, a review of the relevant laws and standards and an assessment of their implications for the project, and a definition of site selection and design assessment criteria	1 2 3 4 5 2 1 3 3 **2.5**	1 2 3 4 5 1 3 1 4 **3.8**
31. The Legal Context of Architecture Practice *Awareness of* the evolving legal context within which architects practice, and of the laws pertaining to professional licensure, professional service contracts, and the formation of design firms and related legal entities	1 2 3 4 5 2 5 3 **2.1**	1 2 3 4 5 1 1 4 3 **3.8**
32. Practice Organization and Management *Awareness of* the basic principles of office organization, business planning, marketing, negotiation, financial management, and leadership, as they apply to the practice of architecture	1 2 3 4 5 6 3 1 **1.5**	1 2 3 4 5 1 2 3 2 **3.3**
33. Contracts and Documentation *Awareness of* the different methods of project delivery, the corresponding forms of service contracts, and the types of documentation required to render competent and responsible professional service	1 2 3 4 5 5 2 2 1 **1.9**	1 2 3 4 5 1 3 3 2 **3.7**

CRITERIA	EDUCATION	WORK EXPERIENCE
34. Professional Internship *Understanding of* the role of internship in professional development, and the reciprocal rights and responsibilities of interns and employers	1 2 3 4 5 5 3 1 1 **1.8**	1 2 3 4 5 1 1 3 2 2 **3.3**
35. Architects' Leadership Roles *Awareness of* architects' leadership roles from project inception, design, and design development to contract administration, including the selection and coordination of allied disciplines, post-occupancy evaluation, and facility management	1 2 3 4 5 2 4 4 **2.2**	1 2 3 4 5 3 4 2 **3.9**
36. The Context of Architecture *Understanding of* the shifts which occur—and have occurred—in the social, political, technological, ecological, and economic factors that shape the practice of architecture	1 2 3 4 5 1 4 4 1 **2.5**	1 2 3 4 5 1 1 3 3 1 **3.2**
37. Ethics and Professional Judgment *Awareness of* the ethical issues involved in the formation of professional judgments in architecture design and practice	1 2 3 4 5 3 3 4 **2.1**	1 2 3 4 5 1 1 5 2 **3.7**

Appendix A

Focus Group Agenda

(Sample)

November 4, 1998

A G E N D A

9:30 a.m.	Welcome and Introduction
9:40 a.m.	Overview of Focus Group Program
9:45 a.m.	Focus Group Discussion
	Part I: Participant Profile
	Part II: Focus on the Architect
	Part III: Focus on CBAE
	Part IV: Follow-up Items
11:25 a.m.	Summary and Next Steps
11:30 a.m.	Close

Appendix B

Focus Group Questionnaire

(Sample)

Part I. Participant Profile

1. How do you describe your profession?
2. How long have you been in this field?
3. What is your educational background?
4. Please describe the type and size of projects of your typical projects.
5. Please identify the geographic locations where your architecture-related work occurs.

Part II. Focus on the Architect

1. Please describe the knowledge, skills and competencies that you expect from professional architects.
2. In general, how well do you think architects are meeting those expectations?
3. Describe an experience where an architect has done a good job in meeting those expectations.
4. Describe an experience where an architect has done a poor job in meeting those expectations.
5. How should architects improve in those areas?

Part III. Focus on CBAE

1 What is your understanding of the role of CBAE?

2. What is your impression of CBAE's effectiveness?

Based on your experience working with architects, please evaluate CBAE's performance in meeting its mission in each of the areas listed below. Please write down any suggestions you have for improving CBAE's effectiveness in these areas.

Ensuring that those entering the practice meet minimum standards of competency by way of education, experience, and examination	
+	–
Suggestions for Improvement:	
Requiring that any person practicing or offering to practice architecture be licensed	
+	–
Suggestions for Improvement:	
Establishing standards of practice for those licensed to practice	
+	–
Suggestions for Improvement:	

Protecting consumers and users of architectural services	
+	–
Suggestions for Improvement:	
Enforcing the laws, codes, and standards governing architectural practice in a fair and uniform manner	
+	–
Suggestions for Improvement:	
Empowering consumers by providing information and educational materials to help them make informed decisions	
+	–
Suggestions for Improvement:	

Part IV. Follow-up Items

1. Is there anything you would like to see as a follow-up to this focus group?

2. What types of information would you like to see CBAE provide in the future?

3. Please give us your general evaluation of today's focus group, as well as any suggestions for improving future focus groups.

+	–
Suggestions for Improvement:	